

Appl. No. 09/864,836



PATENT APPLICATION

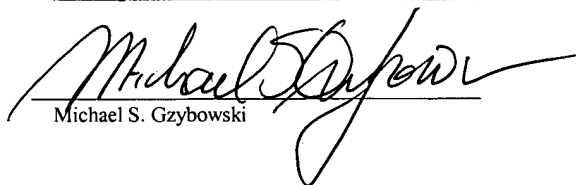
*IN THE UNITED STATES PATENT AND TRADEMARK OFFICE*

*Group* }  
*Art Unit:* 3761 }  
*Attorney* }  
*Docket No.:* 121027-053 }  
*Applicant:* Hideyuki ISHIKAWA }  
*Invention:* DISPOSABLE DIAPER AND PROCESS }  
FOR MAKING THE SAME }  
*Serial No:* 09/864,836 }  
*Filed:* May 24, 2001 }  
*Examiner:* Karin Reichle }

Certificate Under 37 CFR 1.8(a)

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

on August 24, 2006

  
Michael S. Gzybowski

BRIEF ON APPEAL

Commissioner of Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Further to Appellant's Notice of Appeal filed April 24, 2006 in connection with the above-identified application, appellant submits the present Brief on Appeal.

REAL PARTY IN INTEREST

Appellant has assigned this application to Uni-Charm Corporation in an assignment which was executed by the inventor on September 25, 2001, and filed in the United States Patent and

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Trademark Office on October 24, 2001 and recorded on January 2, 2002 at Reel No. 012417 and Frame No. 0823.

#### RELATED APPEALS AND INTERFERENCES

There are no related applications that are on appeal or involved in any interference.

#### STATUS OF CLAIMS

Claims 1-9 are pending in this application. Claims 1-6, 8 and 9 stand under final rejection, from which final rejection of claims 1 and 3 this appeal is taken. Claim 7 was withdrawn from the prosecution. No other claims are pending.

#### STATUS OF AMENDMENTS

A Supplemental Amendment after Final Rejection was filed in this application on June 7, 2006. As of the date of this Brief on Appeal, the Examiner has not acted on the Supplemental Amendment after Final Rejection.

### SUMMARY OF CLAIMED SUBJECT MATTER

The present invention as set forth in the appended claims is directed to a disposable diaper that includes an elastically stretchable covering member 3 (shown in Fig. 1), 40 (shown in Fig. 6 and discussed in detail in the paragraph bridging pages 14 and 15 of appellant's original specification) for covering a diaper wearer's crotch region 8 (Fig. 1), 48 (Fig. 6) and front and rear waist regions, 46, 17 (Fig. 6), 6, 7 (Fig. 1).

The disposable diaper further includes a liquid-pervious sheet 2 (Fig. 1), 42 (shown in Fig. 6 and discussed in detail in the paragraph bridging pages 14 and 15 of appellant's original specification), the liquid-pervious sheet 42 having a skin contactable surface for contacting with skin of the diaper wearer.

The disposable diaper further includes a liquid-absorbent core member 4 (Fig. 1) 44 sandwiched between the liquid-pervious sheet 42 and the covering member 40 as shown in Fig. 7 and discussed in the paragraph bridging pages 14 and 15 of appellant's original specification).

Discrete elastic members 17 (Fig. 1), 57 (Figs. 6 and 7) are provided along transverse side edges of the diaper to extend circumferentially along leg-openings that are defined when the diaper is put on the diaper wearer.

The covering member 3 (Fig. 2) 40 consists of an elastically stretchable first layer 40a (3a, Fig. 2) and an inelastically stretchable second layer 40b (3b, Fig. 2) shown in Fig. 7 and discussed in the paragraph bridging pages 14 and 15 of appellant's original specification.

As shown in Fig. 4 and discussed in the paragraph bridging pages 9 and 10 of appellant's original specification, the inelastically stretchable second layer 3b (40a) is formed of a plurality of continuous fibers 20 which continuous fibers are fixed to the elastically stretchable first layer 3a (40a) in bonding zones 21 spaced apart from each other so that a ratio of  $L_1/D_1$ , where  $L_1$  is a length of the continuous fibers extending between a first pair of the bonding zones in a first zone on the covering member and  $D_1$  is a distance in a straight line between the first pair of bonding zones in the first zone of the covering member is larger than a ratio of  $L_2/D_2$ , where  $L_2$  is a length of the continuous fibers extending between a second pair of the bonding zones in a second zone on the covering member and  $D_2$  is a distance in a straight line between the second pair of bonding zones in the second zone of the covering member (the first and second zones "A" and "B" are shown in Figs. 3 and 7).

The stretchability of the first and second zones allows the covering member 3, 40 to more easily stretched in a direction away from the skin contactable surface in the first zone than in the remaining zone of the covering member 3, 40. As shown in Figs 2 and 7, the first zone is adjacent the liquid-absorbent core member 4, 44 and at least substantially coextensive with the liquid-absorbent core member 4, 44, so that pressure exerted on the covering member 40 by the liquid-absorbent core member will stretch the first zone in the direction of the skin contactable surface without exerting any pressure on the discrete elastic members (See discussion in paragraph bridging pages 7 and 8 of appellant's original specification).

The elastically stretchable first layer is in a transversely middle cone of the diaper as shown in Figs. 2 and 7 and is formed of an elastically stretchable film as discussed in the paragraph bridging pages 14 and 15 of appellant's original specification.

The continuous fibers of the inelastically stretchable second layer are made of polypropylene as discussed in the paragraph bridging pages 8 and 9 of appellant's original specification.

The elastically stretchable first layer is formed from a liquid-impervious sheet and lies inside the second layer as shown in Figs. 2 and 7.

The elastically stretchable first layer is formed from a liquid-impervious sheet and lies inside the inelastically stretchable second layer so that the elastically stretchable first layer functions as a liquid-impervious backsheet for the liquid-absorbent core member as shown in Figs. 2 and 7.

The continuous fibers of the inelastically stretchable second layer are made of propylene copolymers as discussed in the paragraph bridging pages 8 and 9 of appellant's original specification.

#### GROUND'S OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 1-6, 8 and 9 satisfy the written description requirement of 35 U.S.C. §112, first paragraph.

Whether claims 1-3 are anticipated by Divo et al. under 35 U.S.C. §102(b), or obvious over Divo et al. under 35 U.S.C. §103(a).

Whether claims 4, 8 and 9 are unpatentable over Divo et al alone or Divo et al., Serbiak et al. and Morman et al. in view of Estey et al. under 35 U.S.C. §103(a).

Whether claims 5 and 6 are unpatentable over Divo et al., Serbiak et al. and Morman et al. under 35 U.S.C. §103(a).

### GROUPING OF CLAIMS

Claims 1-6, 8 and 9 stand or fall together under the rejection based on 35 U.S.C. §112, first paragraph.

Claims 1-3 stand rejected as being anticipated by Divo et al. under 35 U.S.C. §102(b), or obvious over Divo et al. under 35 U.S.C. §103(a), and stand or fall together separately under this rejection for the reasons advanced below.

Claims 4, 8 and 9 stand rejected as being unpatentable over Divo et al alone or Divo et al., Serbiak et al. and Morman et al. in view of Estey et al. under 35 U.S.C. §103(a), and stand or fall together separately under this rejection for the reasons advanced below.

Claims 5 and 6 stand rejected as being unpatentable over Divo et al., Serbiak et al. and Morman et al. under 35 U.S.C. §103(a), and stand or fall together separately under this rejection for the reasons advanced below.

### THE REFERENCES

The examiner has relied upon the following references:

Estey et al.	5,853,881	December 29, 1998
Serbiak et al.	5,846,232	December 8, 1998

Morman et al.  
Divo et al.

4,655,760  
EP 0 650 714

April 7, 1987  
May 3, 1995

### THE REJECTION

Claims 1-6 stand rejected under 35 U.S.C. §112, first paragraph.

Claims 1-3 stand rejected under 35 U.S.C. §102(b) as being anticipated by Divo et al. or, in the alternative, under 35 U.S.C. §103(a) as being obvious over Divo et al. in view of Serbiak et al. and Morman et al.

Claims 4, 8 and 9 stand rejected under 35 U.S.C. §103(a) as being obvious over Divo et al. alone or Divo et al., Serbiak et al. and Morman et al. in view of Estey et al.

Claims 5 and 6 stand rejected under 35 U.S.C. §103(a) as being obvious over Divo et al. alone or Divo et al., Serbiak et al. and Morman et al.

### ARGUMENT

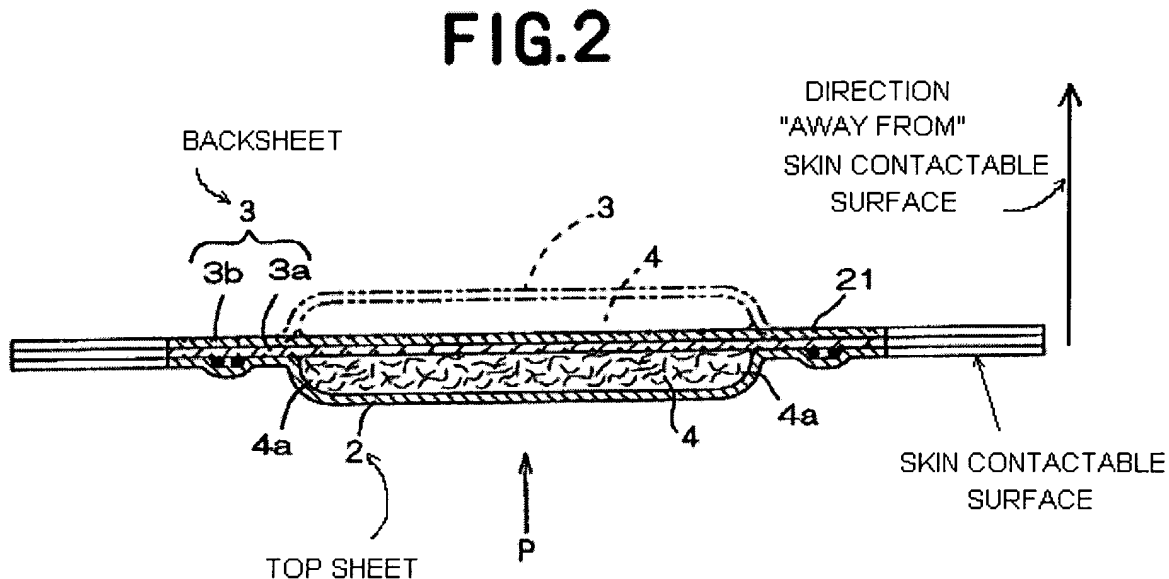
#### Rejection of Claims 1-6 Under 35 U.S.C. §112, First Paragraph

This rejection is based upon the Examiner's position that the recitation "direction of the skin contactable surface" was opposite to "direction away from the skin contactable surface." In response to the Examiner's position and further clarification in the Advisory Action of March 13, 2006 in which the Examiner stated that "the entire claim 1 is not identical to the 7-20-04 claim 1," claim 1 has been amended to recite that "so that pressure exerted on said covering member by said liquid-

absorbent core member will stretch the first zone in said direction away from the skin contactable surface.”

This is the same language that was presented in claim 1 on July 20, 2004.

This language is believed to meet the written description requirements of 35 U.S.C. §112, first paragraph inasmuch as this language accurately describes the invention as shown and described in reference to appellant's Fig. 2, reproduced herein:



Rejection of Claims 1-3 under 35 U.S.C. §102(b) as being anticipated by Divo et al. or, in the alternative, under 35 U.S.C. §103(a) as being obvious over Divo et al. in view of Serbiak et al. and Morman et al.

The Examiner had relied upon Divo et al. by referring to:

Figures 1-4, 6, 9-13, lines 31-39, portion(s) selectively “activated” while other remaining or second portion(s) remain unactivated, col. 1, lines 3-16, col. 3, lines 52-55, (it is noted “elongation as defined by the dictionary means “stretched out, lengthened), col. 8, line 6-col 9, line 6 (Note definition of “nonwoven” in Materials



Handbook provided in a previous Office Action), col. 9, line 19-col 10, line 19, col. 11, lines 20-46, col.12, line 20-col. 13, line 5, col. 14, lines 28-30, col. 15, line 42 - col. 16, line 4, i.e. the cover is 26, the previous sheet is 24, the core is 28, the elastic members are 32, the first layer is 5 or 11, the second layer is 3 or 7 and 15.

The Examiner stated that:

Figures 2-3, col. 3, lines 52-55, col. 11, lines 20-46, and col. 6, lines 31-39 disclose the ratio set forth on lines 11-19 of claim 1, i.e. teach the nonwoven, i.e. continuous fibers, are activated in a first zone, e.g. the continuous fibers are longer between bonding points due to gathering, and not activated in a remaining or second zone, i.e. the continuous fiber are shorted between bonding points because not gathered.

The Examiner moreover stated that:

It is the Examiner's first position that col. 6, lines 31-39 also teach the structure of the lines 21-23 of claim 1 and claim 2.

and:

Lines 19-21 and 23 *et seq* of claim 1, as best understood, note new matter rejection *supra*, recite function or capability of the claimed structure.

The Examiner has concluded:

The Divo device includes the same structure, see cited portions above. Therefore there is sufficient factual basis to conclude that the function or capability of the claimed structure is also inherent in the same structure of Divo.

Appellant's independent claim 1 recites, in part:

.. said covering member consisting of an elastically stretchable first layer and an inelastically stretchable second layer formed of a plurality of continuous fibers, said continuous fibers being fixed to said elastically stretchable first layer in bonding zones spaced apart from each other so that a ratio of  $L_1/D_1$ , where  $L_1$  is a length of said continuous fibers extending between a first pair of said bonding zones in a first zone on said covering member and  $D_1$  is a distance in a straight line between said

first pair of bonding zones in said first zone of said covering member is larger than a ratio of  $L_2/D_2$ , where  $L_2$  is a length of said continuous fibers extending between a second pair of said bonding zones in a second zone on said covering member and  $D_2$  is a distance in a straight line between said second pair of bonding zones in said second zone of said covering member, whereby said covering member is more easily stretched in a direction away from the skin contactable surface in said first zone than in said second zone of said covering member, and said first zone being adjacent said liquid-absorbent core member and at least substantially coextensive with said liquid-absorbent core member, so that pressure exerted on said covering member by said liquid-absorbent core member will stretch the first zone in said direction away from the skin contactable surface without exerting any pressure on said discrete elastic members.

Divo et al. does not teach the structure required by appellant's independent claim 1.

The configuration of the first and second zones and their particular L/D ratios and stretchabilities in relationship to the discrete elastic members that are provided adjacent the leg-opening provides a unique, structurally-related function in appellant's invention.

As discussed in appellant's specification:

Only the range A of the backsheet 3 is deformed as indicated by chain lines in Fig. 2. The core member 4 shifts its position so as to protrude outwardly of the diaper 1 when the diaper 1 is put on a wearer's body with the topsheet 2 placed against the wearer's skin under pressure P exerted on the core member 4 (See Figs. 2 and 3). The pressure P is adequately dampened by the stretching of the range A to avoid exerting pressure on the elastic members 17 of the leg-openings via the ranges B. Thus, there is no apprehension that the desired fitness of the elastic members 17 around the wearer's legs might be adversely affected by the pressure P. In this way, the elastic members 17 associated with the leg-openings cooperate with the ranges B, which are less stretchable than the range A, so to maintain the desired fitness of the diaper 1 around the wearer's legs. It is unnecessary for such diaper 1 to use elastic members 17 associated with the leg-openings that have a relatively high stretch stress to compensate for the influence of the pressure P. With such diaper 1 according to the present invention, there is no anxiety that the elastic members 17 will have a relatively high stretch stress that might be unacceptably pressed around the wearer's legs. (paragraph bridging pages 7 and 8)

In contract to appellant's invention which requires the centrally located range A (first zone) to be have a larger L/D ratio than range B (second zone), Divo et al. depicts attaching the composite elastic member 37 to waist regions 34 and/or the areas 27 defining the leg openings (Col. 17, lines 31-35).

Such a teaching is completely opposite to appellant's invention.

Accordingly, Divo et al. cannot be relied upon as anticipating appellant's claimed invention.

The Examiner has relied upon each of Serbiak et al. and Morman et al. as teaching that:

...it is known in the diaper art to provide elasticity to a backsheet consisting of a composite elastic member wherein only the transverse middle zone part is extensible which the remainder is not.

In combining the teachings of Divo et al. with Serbiak et al. and Morman et al. the Examiner has taken the position that:

...to make the part of the composite which is activated or extensible only the transverse middle portion of the backsheet as taught by Serbiak et al and Morman et al on the Divo et al device would be obvious to one of ordinary skill in the art in view of the recognition that such would provide a backsheet where only a portion is activated which the remainder is not as desired by Divo et al.

The Examiner states that:

Lines 19-21 and 22 et seq of claim 1 recite function or capability of the claimed structure. The prior art combination teaches the same structure, see cited portions above. Therefore there is clear and convincing evidence that the claim's functional or characteristic recitation necessarily flows and/or is inevitable present in the teachings of the prior art of record.

The Examiner's analysis fails to properly consider the overall teachings of the prior art in

view of appellant's claimed invention.

Divo et al. teaches that "activation" involves "permanently elongating or rupturing the layer 3" (column 8, lines 30-33) and that "stretching the non-woven will cause the fibers in the layer 3 to become disentangled to a certain extent or will cause a number of fibers to break."

It is clear that Divo et al. is not at all concerned with processing the composite so as to produce appellant's claimed L/D ratio. That is, if the fibers break or the entire layer 3 ruptures (such events which are allowed for in Divo et al.), the result is that the structure fails to meet appellants' claimed L/D ratio.

It is further noted that, Divo et al. does not teach the limitations for which the Examiner has relied upon Serbiak et al. and Morman et al., i.e., that the activated regions are limited to a central zone of the covering member of a diaper.

In fact the only actual description of selective activated regions taught by Divo et al. involves the physical deformation process which is used to develop the activated portions. These are illustrated as the pleats in the figures of Divo et al., which as the Examiner will note, do not limit the activated areas to a central zone as required by appellant's claimed invention.

The Examiner has found it necessary to rely upon Serbiak et al. and Morman et al. as teaching that:

...it is known in the diaper art to provide elasticity to a backsheet consisting of a composite elastic member wherein only the transverse middle zone part is extensible which the remainder is not.

A careful reading and analysis of each of Serbiak et al. and Morman et al. reveals that the teachings of these references are limited to providing a composite sheet for diapers which have

longitudinal or transverse stretchability.

The Examiner's attention is directed to Serbiak et al. at column 2, lines 12-14; column 2, line 65 through column 3, line 1; column 8, lines 19-22; column 10, lines 24-30; and column 11, lines 16-18.

From these passageways it is clear that Serbiak et al. only teaches that the extensible characteristics of the "base structure" involve longitudinal and transverse stretchability - inasmuch as it Serbiak et al. certainly teaches that if the "base structure" is attached to the absorbent core, the result will be that there is nonextensibility over the coextensive areas of the absorbent core and the "base structure."

Likewise, the Examiner's attention is directed to Morman et al. at column 8, lines 41-46 whereat Morman teaches that:

In the embodiment of FIG. 3, absorbent pad 24 may be bonded to inner liner 22 to help retain pad 24 in place but it is not bonded to the outer cover provided by the composite of webs 10 and 12 so as to permit expansion and contraction of the latter to provide a smooth and comfortable fit on the wearer.

As can be understood, from the above, the composite sheets of both Serbiak et al. and Morman et al. are: 1) stretchable at least in the transverse direction; and 2) will become "non extensible" (Serbiak et al.) or not subject to "expansion and contraction" (Morman et al.) if bonded to the respective absorbent members.

It accordingly follows that the teachings of Serbiak et al. and Morman et al. fail to teach a structure that meets the limitation of appellant's independent claim 1 that requires:

... so that pressure exerted on said covering member by said liquid-absorbent core member will stretch the first zone in said direction away from the skin contactable

surface without exerting any pressure on said discrete elastic members.

Clearly, the characteristics and nature of the extensible and stretchable composite sheets of Serbiak et al. and Morman et al. are taught as being such that any force or pressure applied to the respective absorbent core would affect force or pressure on any adjacent leg elastic members.

Note, Serbiak et al. even teaches that if the extensive zones cover a sufficient area of the absorbent article, neither the leg elastics 40 or the waist elastics 38 may be required. That is because there is no isolation of the forces that are generated in the extensive zones - such forces will extend to and eliminate the need of the leg and waist elastic members.

Clearly there is no provision that could be considered as “isolation” of leg elastic members from forces acting on the adjacent stretchable sheets of Serbiak et al. or Morman et al.

Thus, these references fail to render obvious this feature and limitation of appellant’s claimed invention.

It accordingly, follows that the combination of Divo et al. with either Serbiak et al or Morman et al. fails to render obvious this feature and limitation of appellant’s claimed invention.

Should the Examiner consider that the combination of prior art inherently renders appellant’s claimed invention obvious, it is noted that inherency and obviousness are entirely different concepts. As held by the CCPA in *In re Shetty*:

That which may be inherent is not necessarily known. Obviousness cannot be predicated on what is known. (*In re Shetty*, 195 USPQ 753 (CCPA 1977))

Based upon the above, it is submitted that Divo et al. alone or in combination with Morman et al. and Serbiak et al. does not anticipate or otherwise render obvious appellant’s

claimed invention.

Rejection of Claims 4, 8 and 9 stand rejected under 35 U.S.C. §103(a) as being obvious over Divo et al. alone or Divo et al., Serbiak et al. and Morman et al. in view of Estey et al.

The Examiner has relied upon Estey et al. as teaching:

...in the diaper art, in elastic composition, the interchangeability of elastic films and nonwovens of noncrimped fibers with elastic webs of crimped fibers and the interchangeability of polyethylene nonwoven nonelastic for polypropylene or propylene copolymer nonelastic nonwovens.

In combining the teachings of Divo et al., Serbiak et al, Morman and Estey et al. the Examiner takes the position that:

To make the elastic film or nonwoven of noncrimped fibers of Divo et al. a nonwoven material made of crimped fibers instead and to make the second layer of Divo et al. as claimed instead would be obvious to one of ordinary skill in the art in view of the interchangeability as taught by Estey et al.

Estey et al. teaches at column 5, lines 52-58:

Conjugate fibers are also taught in U.S. Pat. No. 5,382,400 to Pike et al. and may be used to produce crimp in the fibers by using the differential rates of expansion and contraction of the two (or more) polymers. Crimped fibers may also be produced by mechanical means and by the process of German Patent DT 25 13 251 A1.

The cited U.S. Patent to Pike et al. teaches:

To increase the bulk or fullness of the bicomponent nonwoven webs for improved fluid management performance or for enhanced "cloth-like" feel of the webs, the bicomponent filaments or fibers are often crimped.

It is accordingly submitted that the reference to crimped fibers in Estey et al. has to do

with increasing the bulk of nonwovens.

In contrast, Divo et al. teaches crimping of composite members (not fibers used to form components of there composite members) for purposes of physically deforming the composite members and "to render the composite member elastically elongatable" (column 3, lines 26-28)

It is submitted that the type and function of the crimped fibers taught by Estey et al. (crimping the fibers before they are formed into webs for purposes of increasing bulk) is not at all related to the crimping taught by Divo et al.

Accordingly, there is no basis for inferring that the two are equivalents so that the teachings of Estey et al. can be applied and used to modify Divo et al.

It would seem that crimping the fibers to bulk the composite members of Divo et al. would hinder the desire to impart elastical elongatability inasmuch as if the individual crimped fibers were stretched to become uncrimped or less crimped or deformed, they would not be effectively activated as required by Divo et al.

Accordingly, it is submitted that there is no basis upon which to establish that the teachings of Estey et al. are applicable to Divo et al.

Accordingly, the combination of Divo et al., Serbiak et al, Morman et al. and Estey et al. is improper under 35 U.S.C. §103.

It is noted that Estey et al. teach improving the hysteresis of a composite. This appears to be opposite or contrary to the goals of Divo et al.

Rejection of Claims 5 and 6 stand rejected under 35 U.S.C. §103(a)  
as being obvious over Divo et al. alone or Divo et al., Serbiak et al.



and Morman et al.

Under this rejection the Examiner has conceded that:

Divo et al. only discloses such elastic layer as being elastic films or nonwovens and coextensive with the second layer initially and the desire that the backsheet be liquid impervious and have a clothlike appearance.

The Examiner has relied upon Serbiak et al. as teaching:

..in the diaper art, in elastic composites, the interchangeable of elastic pervious films and elastic impervious films.

In combining the teachings of Divo et al., Serbiak et al. and Morman et al. the Examiner has taken the position that:

To make the elastic layer the inner most of the two layers as taught by Serbiak et al. on the Divo et al. device would be obvious to one of ordinary skill in the art as providing a more clothlike appearance as desired by Divo et al.

The Examiner's position is not understood. Divo et al. teach attaching the composite elastic member to portions of a sanitary napkin (Figs. 17 and 19). The cross-sectional views (Figs. 18 and 20 depict the elastic members on either side of the backsheets.

It is unclear how the Examiner's proposed modification would benefit Divo et al.

It would seem that the position of the backsheet that is a functional part of the napkin to which the composite elastic members are added cannot be structurally positioned in the manner proposed by the Examiner.

Accordingly, the Examiner's proposed combination of the Divo et al., Serbiak et al. and Morman et al. is not believed to truly be obvious as required under 35 U.S.C. §103.

## CONCLUSION

For the reasons advanced above, appellant respectfully contends that the rejection of claims 1-6 should properly be withdrawn as the claims satisfy this section of the statute.

Further for the reasons advanced above, appellant respectfully contends that the rejection of claims 1-3 stand rejected under 35 U.S.C. §102(b) as being anticipated by Divo et al. or, in the alternative, under 35 U.S.C. §103(a) as being obvious over Divo et al. in view of Serbiak et al. and Morman et al. is improper as the examiner has not met his burden of establishing anticipation or a prima facie case of obviousness.

Further for the reasons advanced above, appellant respectfully contends that the rejection of claims 4, 8 and 9 stand rejected under 35 U.S.C. §103(a) as being obvious over Divo et al. alone or Divo et al., Serbiak et al. and Morman et al. in view of Estey et al. is improper as the examiner has not met his burden of establishing a prima facie case of obviousness.

Further for the reasons advanced above, appellant respectfully contends that the rejection of claims 5 and 6 stand rejected under 35 U.S.C. §103(a) as being obvious over Divo et al. alone or Divo et al., Serbiak et al. and Morman et al. is improper as the examiner has not met his burden of establishing a prima facie case of obviousness.

Reversal of each of the rejections on appeal is respectfully requested.

To the extent necessary, a petition for an extension of time under 37 CFR §1.136 is hereby made. Please charge the fees due in connection with the filing of this paper, including extension of

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time fees, to Deposit Account No. 12-2136 and please credit any excess fees to such deposit account.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Michael S. Gzybowski", with a long horizontal flourish extending to the right.

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156736.1

CLAIMS APPENDIX

Claim 1. A disposable diaper comprising:

an elastically stretchable covering member for covering a diaper wearer's crotch and waist regions;

a liquid-pervious sheet having a skin contactable surface for contacting with skin of said diaper wearer;

a liquid-absorbent core member sandwiched between said liquid-pervious sheet and said covering member;

discrete elastic members provided along transverse side edges of said diaper to extend circumferentially along leg-openings that are defined when the diaper is put on the diaper wearer;

said covering member consisting of an elastically stretchable first layer and an inelastically stretchable second layer formed of a plurality of continuous fibers, said continuous fibers being fixed to said elastically stretchable first layer in bonding zones spaced apart from each other so that a ratio of  $L_1/D_1$ , where  $L_1$  is a length of said continuous fibers extending between a first pair of said bonding zones in a first zone on said covering member and  $D_1$  is a distance in a straight line between said first pair of bonding zones in said first zone of said covering member is larger than a ratio of  $L_2/D_2$ , where  $L_2$  is a length of said continuous fibers extending between a second pair of said bonding zones in a second zone on said covering member and  $D_2$  is a distance in a straight line between said second pair of bonding zones in said second zone of said covering member, so that said covering member can be more easily stretched in a direction away from the skin contactable surface in said first zone than in said remaining zone of said covering member, and said first zone being

adjacent said liquid-absorbent core member and at least substantially coextensive with said liquid-absorbent core member, so that pressure exerted on said covering member by said liquid-absorbent core member will stretch the first zone in said direction of the skin contactable surface without exerting any pressure on said discrete elastic members.

Claim 2. The diaper according to Claim 1, wherein said first zone is a transversely middle zone of said diaper.

Claim 3. The diaper according to Claim 1, wherein said elastically stretchable first layer is formed of an elastically stretchable film.

Claim 4. The diaper according to Claim 1, wherein said continuous fibers of said inelastically stretchable second layer are made of polypropylene.

Claim 5. The diaper according to Claim 1, wherein said elastically stretchable first layer is formed from a liquid-impervious sheet and lies inside said second layer.

Claim 6. The diaper according to Claim 1, wherein said elastically stretchable first layer is formed from a liquid-impervious sheet and lies inside said inelastically stretchable second layer so that said elastically stretchable first layer functions as a liquid-impervious backsheet for said liquid-absorbent core member.

Claim 7 (Withdrawn): A process for making a disposable diaper having an elastically stretchable covering member for covering a diaper wearer's crotch and waist regions, a liquid-pervious sheet for contacting with skin of said diaper wearer, and a liquid-absorbent core member sandwiched between said liquid-pervious sheet and said covering member, said process comprising the steps of:

- providing an elastically stretchable first layer destined to form said covering member;
- providing a second layer formed with a plurality of inelastic stretchable continuous fibers;
- bonding said elastically stretchable first layer and said second layer together at a plurality of intermittently formed bonding zones to thereby form a composite sheet;
- stretching only a portion of said composite sheet in one direction so that said elastically stretchable first layer of said portion may be elastically stretched together with said continuous fibers;
- allowing said composite sheet to contract under a contractile force of said first elastically stretchable layer to form said covering member; and
- incorporating said cover member into a disposable diaper having a liquid-absorbent core member so that said stretched and contracted portion of said composite sheet is adjacent and at least substantially coextensive with said liquid-absorbent core member.

Claim 8. The diaper according to Claim 1, wherein said elastically stretchable first layer is formed of a nonwoven fabric made of crimped fibers.

Claim 9. The diaper according to Claim 1, wherein said continuous fibers of said inelastically stretchable second layer are made of propylene copolymers.

EVIDENCE APPENDIX

1. *In re Shetty*, 195 USPQ 753 (CCPA 1977)